

Development of the chin scales and chinstrap of Pickelhauben

by Sandy Michael Heinemann

Prussia (from 1870 at the latest also Baden, Württemberg and Hesse as well as the small states):

The measurements given from 1893 onwards are taken from the clothing regulations for enlisted men and for officers. For the measurements before 1893 I have determined average values, which I have calculated on the basis of stated measurements from contemporary books and trade journals, but also on the basis of measurements of many helmets which I have taken. I wanted to approximate the dimensional specifications in this way, even though I know that these were only very rudimentarily adhered to by the manufacturers despite very tight tolerances.

- The first chin scales on the helmets of **1842/43** weren't new developments, but were adopted from the retired leather helmets. During slashing tests on the new helmets, the chin scales were found to be particularly effective, which is why they were kept despite their slightly higher weight. The early chin scales for enlisted men and officers had the same dimensions; the different specifications evolved around 1870.
 - Initially, all chin scales were curved throughout. At the broad end they were around 3.6 cm to 3.8 cm wide, but then tapered to around 1.6 cm to 1.8 cm. The scales always alternated between a 3-curved segment and a 2-curved segment. The wide end scale was covered with an oval-shaped disk, the rosette, decorated with pressed-in rings. It was also used to attach the leather cockade. The rosettes were usually oval and measured 3.5 x 4.0 cm, but I have also seen round rosettes with a diameter of around 3.5 cm.
 - The narrow end links didn't always have the small hook/eye fastening at first, with which the raised chin scales could easily be secured. This was initially only found on some officers' helmets. Instead, the other chin scales were fastened as short as possible using buckles and straps. However, the advantage of the hook/eye fastening was quickly recognized, which is why it was generally introduced with the first delivery of chin scales for the new enlisted men's pickelhauben and quickly became standard for officers as well.
 - The chin scales were usually attached to the helmet with a set of a screw and an elongated decorative nut. The screw was inserted through the helmet from the inside and a turned decorative nut was screwed on from the outside, which protruded about 1.5 - 2.0 cm from the helmet (Fig. 1).
- With an AKO of June 26, **1856**, flat chin scales were introduced for foot troops after they increasingly complained about the curved shape and the protruding decorative nuts. With their helmets on, the soldiers had problems positioning the rifle butt properly so that they could aim over the barrel.
 - The first flat chin scales of the enlisted men and officers were around 2.5 - 2.6 cm wide and tapered to 1.5 - 1.6 cm (Fig. 2). The round rosettes for the flat chin scales were approx. 0.2 cm larger, i.e. had a diameter of 2.7 - 2.8 cm.
 - Because of the problems with aiming, the chin scales attachment was also modified and the elongated decorative nuts were replaced by a steel set of a slotted half-round head screw and a threaded bush (Fig. 2). As the screw no longer protruded so far, the soldiers could lean their cheeks much better against the rifle and aim.
 - However, the curved chin scales were undoubtedly more elegant to look at, which is why the mounted troops, who didn't primarily have to shoot with a rifle, retained them.



Figure 1: Chin scale attachment M/42 (Courtesy of Tony Schnurr - Kaisersbunker.com)



Figure 2: Flat chin scale with attachment of an M/71 (Collection SMH)

- The M/60 helmet was then introduced by AKO on November 3, **1860**, which also narrowed the curved chinscales somewhat, bringing them closer to the flat chinscales.
 - The curved chinscales of many mounted units, such as the field artillery, were narrowed in width to approx. 2.8 cm / 1.5 cm (Fig. 3). The rosettes for these chinscales measured approx. 3.0 x 3.5 cm.
 - In my experience, the dragoons and cuirassiers, which kept a wide chinscales, were also slightly narrowed at this time. They were now only around 3.5 cm / 1.4 - 1.6 cm wide (Fig. 4). Their rosettes, however, remained unchanged and still measured 3.5 x 4.0 cm.



Figure 3: Curved chinscale with attachment of an M/71 of the FAR



Figure 4: Curved chinscale with attachment of an M/60 (SMH collection)

- After the military requirements changed fundamentally and the sabres no longer played such a role in combat, the chinscales with the M/87 helmet were eliminated for most foot troops. Instead, by AKO from 3. In March **1887**, a chinstrap made of blackened leather was introduced.
 - The chinstrap M/87 was around 1.8 cm wide and it was attached to the helmet by a simple hook as a rosette (Fig. 5). It had 1 buckle to adjust the length (Fig. 6). The chinscales were only worn by the Guards infantry, the grenadier regiments 1 - 12 and the officers. In the event of mobilization, however, the Guards Infantry and the Grenadier Regiments 1 - 12 were also to put on the chinstrap.
 - The flat chinscales of the non-commissioned officers and those enlisted men, who still wore chinscales, were narrowed to 2.0 cm / 1.2 cm with the introduction of the M/87. The new hook/eye fastening of the chinstrap was adopted for attachment to the helmet.

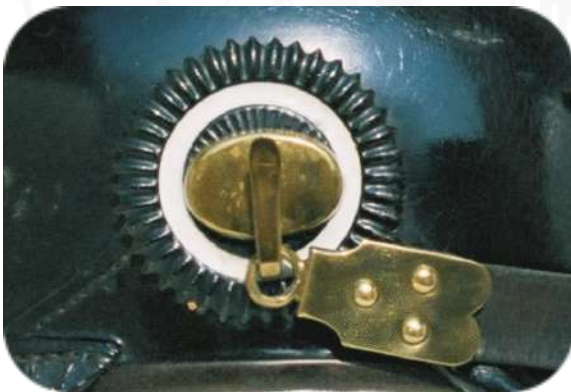


Figure 5: Chinstrap attachment M/87 (SMH collection)



Figure 6: Chinstrap of a M/87 (SMH collection)

- On January 28, **1889**, the metal helmet was revised and the M/89 was introduced. The mounted units continued to wear chinscales on their helmets and no chinstraps.
 - The chinscales of most of the metal enlisted men's helmets were still 3.5 cm / 1.6 cm wide. The oval rosettes weren't changed either. However, the chinscales on the helmets of the Leibgardenerie now measured only 2.0 cm / 1.2 cm in width.
 - The chinscales on the metal officers' helmets were also made much narrower and were now only 2.7 cm / 1.4 cm wide, although not everyone liked this. The cloverleaf rosettes of the officers were 4.0 cm wide at their widest point.

As the hook attachment introduced in 1887 hadn't proved its worth and chinstraps were constantly being lost, the army looked for a replacement early on. This was found in the M/91 chinstrap attachment, which was introduced by AKO on January 8, **1891**.

- According to the clothing regulations, the M/91 chinstrap was initially only 1.5 cm wide and the length was adjusted with 2 pull buckles. The metal eyelets on the chinstrap were around 3.8 cm long and should be 2.0 mm thick.
- The M/91 rosette used to attach the chinstrap to the helmet should initially measure ø13.0 mm according to the specifications (Fig. 7), but the manufactured parts are usually somewhat larger. The rosette was attached to the helmet by means of a 4-way splitted pin and initially usually had only 1 pin to prevent twisting (Fig. 8). However, in 1891 the number of pins to prevent twisting was not yet regulated. The cylinder of the M/91 rosette were about 5.0 mm long and had a wedge-shaped nose pointing diagonally backwards, over which the chinscales or the metal eyelet of the chinstrap, whose recesses were about 0.1 mm larger than the M/91 rosettes, were fitted (Fig. 9). When they rested on the front visor or were worn under the chin, they were secured by this nose.
- The flat chinscales of the non-commissioned officers and those enlisted men who still wore a chinscales were now also attached to the helmet using the M/91 rosette and retained the same width that was used on the M/87 (2.0 cm / 1.2 cm). The rearmost scale was fixed to the leather with 3 rivets in a triangular arrangement (Fig. 10). In addition, the rearmost scale should be 2.0 mm thick, just like the metal eyelets on the chinstrap.

<p>f. an beiden Seiten eine Rosette von 1,3 cm Durchmesser mit nach oben und etwas nach hinten gerichteter 5 mm großer Spitze, zur Befestigung des Kinnriemens (Schuppenfette) und der Kokarde.</p>	<p>f) on both sides a rosette of 1.3 cm in diameter with a 5 mm tip pointing upwards and slightly backwards, for fastening the chinstrap (chinscales) and the cockade.</p>
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Figure 7: Excerpt from "Bekleidungs-Ordnung für Mannschaften der königlich Preußischen Armee" - Part 2, from 1896 (Source: <https://www.books.google.de>)



Figure 8: Chinstrap attachment M/91 (Courtesy of Tony Schnurr - Kaisersbunker.com)



Figure 9: Example of an M/91 rosette fastening from the inside, with a pin as anti-twist device



Figure 10: Curved chin scale with M/91 rosette (Courtesy of Tony Schnurr - Kaisersbunker.com)

As in 1887, the new M/91 chinstrap was initially only introduced for infantry helmets. For cavalry, artillery and the Train, this chinstrap fastening was only generally adopted with the AKO of May 18, **1894**.

- Even with the M/91 attachment, the curved chinscales of the field artillery still had a width of 2.8 cm / 1.5 cm. The rearmost scale of the chinscales was to be 3.0 mm thick for mounted units.
- The M/91 rosette of the metal helmets had to be somewhat more robust, which is why the point of the wedge-shaped nose should be rounded and the nose as a whole should be 2.0 mm thick (Fig. 11).

The M/95 helmet introduced in **1895** was to be made lighter again at the Emperor's personal request.

- The M/91 rosette was initially adopted for this new helmet without adjustment.
- The chinstraps should now be 1.6 cm wide.
- The curved chinscales of the field artillery were minimally narrowed according to the clothing regulations and should now have a width of 2.6 cm / 1.5 cm.
- The flat chinscales of the officers' leather helmets were now only to be 2.3 cm / 1.3 cm wide, while the rosettes were reduced to a diameter of 2.5 cm.
- The curved chinscales of the officers' helmets narrowed to a width of 2.6 cm / 1.4 cm. The oval rosettes now measured only 2.7 x 3.2 cm.

It seems, however, that the durability of the M/91 rosette wasn't entirely satisfactory, as its diameter was increased with the **1903** clothing regulations and the chin scales were also adapted again.

- The cylinder of the M/91 rosette should now measure $\varnothing 14.0$ mm and 2 opposing pins were specified to prevent twisting. The wedge-shaped nose was now defined a little more precisely with a length of 5.0 mm and a thickness of 1.4 mm (Fig. 12).
- The metal eyelets on the chinstrap had to be minimally adjusted due to the enlarged M/91 rosettes, as the cut-outs had to be 0.1 mm larger than the rosettes. However, the thickness of the metal eyelets on the chinstrap remained unchanged at 2.0 mm.
- The width of the chin scales of the Jäger zu Pferd (hunters on horseback) and the Leib-Gendarmerie was changed to a width of 3.2 cm / 1.4 cm from 1903 at the latest.

f) An beiden Seiten je eine zylindrische, durch zwei einander gegenüberstehende Haltestifte am Helm Kopf befestigte Rosette von 14 mm Durchmesser mit nach oben und etwas nach hinten gerichteter, 5 mm langer und 1,4 mm starker Nase, zur Befestigung des Kinnriemens, bzw. der Schuppenkette und der Kokarden.

f) On both sides a cylindrical rosette of 14 mm diameter with a 5 mm long and 1.4 mm thick nose pointing upwards and slightly backwards, attached to the helmet shell by two holding pins facing each other, for fastening the chinstrap, respectively the chin scales and the cockade.



Figure 11: Excerpt from "Bekleidungs-Ordnung für Mannschaften der königlich Preußischen Armee" - Part 2, from 1903 (Source: <https://www.historische-uniformen.de/home/weiterleitungen-und-hinweise/originaldokumente>)

Figure 12: Chin scale attachment of an M/89 metal Pickelhaube (Courtesy of Amy Bellars).

With the introduction of the M/15 on September 21, **1915**, the fastening method with the 4-way split pin and the method to prevent twisting was replaced by a new system.

- The M/91 rosettes were now attached to the helmet using 2 elongated sheet metal tabs (Fig. 13), which were inserted through matching slots in the helmet and then bent over. This not only made production much easier, it also made assembly and disassembly quicker than before.
- In general, the chinstrap should now be worn with a helmet with a cover. The metal eyelets on the chinstrap were often much thinner than prescribed in times of war. The chin scales were only to be worn on the metal helmets, by the 1st Guards Regiment on foot and by the officers.
- In addition, the mounted units and officers now also wore chin scales with M/91 rosettes. However, these were covered on the leather helmets by decorative caps in a similar design to the previously used split pin rosettes (Fig. 14).



Figure 13: Example of M/15 chin scale attachment



Figure 14: Example of officer's chin scale attachment M/15

In Bavaria and Saxony, the dimensions differed slightly from the Prussian specifications:

Saxony:

- In the Kingdom of Saxony in **1867**, when Saxony introduced the Pickelhaube, independent chin scales were worn. The flat chin scales on the leather helmets were to be 2.15 cm / 1.2 cm wide, the curved chin scales 2.65 cm / 1.5 cm. From 1867 to 1918, the chin scales on the officers' leather helmets had the same width as the current enlisted men's chin scales, but they were either gilded or silver-plated. The chin scales on the metal helmets were 3.8 cm / 2.3 cm wide for enlisted men and officers at this time. Those of the enlisted men were attached to the helmet by means of an iron slotted screw and threaded bush; their oval rosettes measured 3.5 x 4.0 cm, as in Prussia. The officers used cloverleaf rosettes, also as in Prussia.
- Probably with the **M/87**, the flat chin scales for the foot troops (without the artillery) were adapted to the Prussian model and they measured 2.0 cm / 1.2 cm in width. The M/87 chin strap was 1.8 cm wide, also as in Prussia.
- In **1891**, the M/91 rosettes were also introduced, but here they most likely measured $\varnothing 13.0 - \varnothing 14.0$ mm (*however, this value was first specified in the 1897 clothing regulations*). As in Prussia, the number of pins to prevent twisting was not yet regulated, but usually only 1 pin was used. The width of the flat chin scales of the enlisted men remained the same, but they were now of course attached to the helmet using the M/91 rosettes. The M/91 chin strap was initially supposed to be 1.5 cm wide. The thickness of the rearmost scale of the chin scales and the metal eyelets on the chin strap were most likely prescribed to be 2.0 mm (*however, this value was first specified in the 1904 clothing regulations*). From then on, the chin scales on the metal helmets were to be 3.5 cm / 1.8 cm wide for enlisted men and officers; their fastening methods and rosettes remained unchanged.
- The curved chin scales of the enlisted men and non-commissioned officers, who were equipped with the M/91 attachment in 1894, were slightly narrower than the Prussian models and measured 2.5 cm / 1.5 cm in width. The chin scales of the enlisted men's and officers' metal helmets were now 3.5 cm / 1.6 cm wide. They also adopted the M/91 rosettes, but with a rounded point on the wedge-shaped nose. The officers retained the cloverleaf rosettes on their metal helmets.
- In **1895**, but at the latest in 1897, the chin strap of the Saxon Pickelhaube was also widened to 1.6 cm; the metal eyelets remained most likely unchanged at a thickness of 2.0 mm. The diameter of the M/91 rosettes was now specified as $\varnothing 13.0 - \varnothing 14.0$ mm, the base attached to the helmet should have a diameter of 1.9 cm. The length of the wedge-shaped nose on the cylinder of the M/91 rosette was specified to be 4.0 mm.
- In **1904**, the diameter of the M/91 rosettes in Saxony was increased to $\varnothing 14.1$ mm. Two pins were now also specified to prevent twisting. The diameter of the base of the M/91 rosettes on the helmet was now 2.0 cm. The wedge-shaped nose on the M/91 rosette was now specified with a length of 4.5 mm and a thickness of 1.4 mm. The widths of the chin scales of the enlisted men also changed slightly in 1904 and were now again as wide as before 1887; the flat chin scales of the enlisted men were again to measure 2.15 cm / 1.2 cm in width, the curved chin scales 2.65 cm / 1.5 cm. The thickness of the rearmost scale of the chin scales was now specified to be 2.0 mm for foot troops and mounted units. The M/91 rosettes of the metal helmets also measured $\varnothing 14.1$ mm from 1904, but the diameter of the base attached to the helmet was still 1.9 cm. However, the nose was now specified with a length of 5.0 mm, a rounded point and a thickness of 1.9 mm.
- With the introduction of the **M/15**, the M/91 rosettes were also introduced by Saxony for the officers and the fastening elements of the rosettes were generally changed. As in Prussia, fake rosettes were integrated into the last scale of the officers' chin scales, covering the M/91 rosettes almost invisibly. However, the dimensions remained the same as the Saxon specifications.

Bavaria:

- In the Kingdom of Bavaria, the pickelhaube wasn't introduced for the majority of the army before **1886**. The chin scales of the enlisted men on the Bavarian M1886 helmet were most likely initially the same width for both enlisted men and officers. The flat chin scales measured 2.3 cm / 1.3 cm, the curved ones measured 2.6 cm / 1.4 cm. The rosettes had a diameter of 2.5 cm. The dimensions of the officers' chin scales remained unchanged from 1886 to 1918.

- In **1887**, as in Prussia, the new chinstrap with hook/eyelet attachment was introduced for infantry, Jäger, pioneer and railroad battalions. As in Prussia, the chinstrap was initially around 1.8 cm wide. The flat chinscales probably narrowed to 2.0 cm / 1.2 cm.
- Also as in Prussia, the M/91 rosette was introduced in **1891**, which initially had a diameter of 13.0 mm. The number of pins to prevent twisting was also not regulated at the beginning and usually only 1 pin was used. The wedge-shaped nose on the M/91 rosette was specified with a length of 5.0 mm. The chinstrap was narrowed to 1.5 cm, but the metal eyelets on the Bavarian chinstrap differed from the Prussian model and were only 1.6 mm thick.
- In **1894**, the M/91 rosette was also introduced for the curved chinscales. This narrowed them to 2.4 cm / 1.4 cm. The rearmost scale of the chinscales was now to be 2.4 mm thick for the Bavarian foot troops, and respectable 3.8 mm for the mounted units.
- In **1896**, but at the latest in 1898, the chinstrap of the Bavarian Pickelhaube was also widened to 1.6 cm.
- In **1904**, the diameter of the M/91 rosette was changed to 14 mm and 2 pins were specified to prevent twisting. The nose was specified with a length of 5.0 mm and a thickness of 1.4 mm, making it identical to the Prussian dimensions.
- With an AKO of February 13, **1914**, it was decreed that officers should now wear only curved chinscales.
- With the introduction of the **M/15**, the M/91 rosettes were also introduced for officers in Bavaria and the fastening elements of the rosettes were generally changed. As in Prussia, fake rosettes were integrated into the last scale for the officer's chinscales, which covered the M/91 rosettes almost invisibly.

